AMENDMENTS TO THE CLAIMS

       The listing of claims below replaces all previous versions, and listings, of claims in the present application.

1.   (Currently amended) Method for balancing a load on a plurality of servers that provide access to resources associated with a domain name, comprising:

(a)   receiving a request for access to resources associated with the domain name;

(b)   determining the load out of band for each of a plurality of servers that provide access to resources associated with the domain name and selecting one of the plurality of servers to provide the access, the selection of the server being based on a determination for optimally balancing the load on the plurality of servers; and

(c)   <u>based on the determination for optimally balancing the load,</u> resolving an Internet protocol (ip) address of the selected server so that the accessing of resources associated with the domain name at the resolved ip address of the selected server will cause the load to be optimally balanced on the plurality of servers on a network.

2.   (Original)   The method of Claim 1, further comprises querying a local Domain Name System (DNS) to provide the ip address associated with the domain name.

3.   (Original)   The method of Claim 2, wherein when the ip address is not present at the local DNS, querying a primary DNS to resolve the ip address associated with the domain name.

4.   (Original)   The method of Claim 3, wherein when the primary DNS determines the domain name is delegated to a EDNS, further comprising

referring the local DNS to the EDNS to resolve the ip address for the selected server, the EDNS employs at least one of a plurality of load balancing determinations to select one of the plurality of servers and resolve the ip address for the selected server.

5. (Original) The method of Claim 4, wherein the EDNS includes the primary DNS.

6. (Original) The method of Claim 4, wherein the EDNS includes a secondary DNS.

7. (Original) The method of Claim 4, wherein the EDNS is a primary EDNS, the primary EDNS collecting metric information employed by the selected load balancing determination to select the server to provide access to the resources associated with the domain name.

8. (Original) The method of Claim 4, wherein selecting one of the plurality of servers that will optimally balance the load, further comprises choosing the server based on one of a plurality of static load balancing determinations for each server, the plurality of static load balancing determinations being selectable and including random, round robin, static ratio, global availability and topology.

9. (Original) The method of Claim 4, wherein selecting one of the plurality of servers that will optimally balance the load, further comprises choosing the server based on one of a plurality of dynamic load balancing determinations for each server, the dynamic load balancing determinations being selectable and including completion rate, least connections, packet rate, hops, round trip times, quality of service and dynamic ratio.

10. (Original) The method of Claim 4, further comprising selecting one of the plurality of load balancing determinations as a primary load balancing determination, the primary load balancing determination being used to select the

server when a time stamp is not expired, the time stamp being associated with metric information used by the primary load balancing determination.

11.   (Original)   The method of Claim 10, further comprising selecting one of the plurality of load balancing determinations as an alternate load balancing determination, the alternate load balancing determination being employed to select the server when the time stamp associated with the metric information used by the primary load balancing determination is expired, another time stamp being associated with metric information employed by the alternate load balancing determination.

12.   (Original)   The method of Claim 11, further comprising selecting one of the plurality of load balancing determinations as a fallback load balancing determination, the fallback load balancing determination being employed to select the server when the time stamp associated with the metric information used by the primary load balancing determination and the other time stamp associated with the metric information employed by the alternate load balancing determination are expired.

13.   (Previously Presented)   The method of Claim 7, further comprising a plurality of EDNSs that are separately disposed at a plurality of geographically distributed data centers, each data center including at least one of a server array controller, host machine and EDNS.

14.   (Original)   The method of Claim 13, wherein at least one of the plurality of EDNSs is a secondary EDNS, the secondary EDNS storing a copy of the metric information collected by the primary EDNS, the secondary EDNS employing the copy of metric information to select a particular server at that will optimally balance the load for accessing resources.

15.   (Original)   The method of Claim 13, wherein at least one of the plurality of EDNSs is a secondary EDNS, the secondary EDNS collecting metric

information that is employed to select a particular server that will optimally balance the load for accessing resources

16.   (Original)   The method of Claim 4, further comprising a server array controller for managing access to at least one of the plurality of servers, the server array controller being in communication with the EDNS.

17.   (Original)   The method of Claim 16, wherein the server array controller is a BIG/IP server array controller.

18.   (Original)   The method of Claim 1, wherein the selected server is a stand-alone server.

19.   (Original)   The method of Claim 4, further comprising an agent program that collects the metric information and communicates the collected metric information to the EDNS when the EDNS is not resolving the ip address for the resources associated with the domain name request.

20.   (Original)   The method of Claim 1, wherein the network comprises a wide area network, Internet and intranet.

21.   (Original)   The method of Claim 4, further comprising a wide ip that maps the domain name to at least one server, the wide ip being employed when the primary DNS is separate from the EDNS.

22.   (Original)   The method of Claim 21, wherein the wide ip maps the domain name to one of the plurality of load balancing determinations.

23.   (Original)   The method of Claim 4, further comprising generating statistics from metric information collected by the EDNS and enabling statistics to be generated for a particular aspect of the network, including server array controller, host machine, server, path and wide ip configuration.

24.   (Original)   The method of Claim 23, wherein the load balancing determination is at least partially based on the generated statistics.

25.   (Original)   The method of Claim 23, wherein the statistics for the server array controller include the up versus down availability of the server array controller, number of packets between the EDNS and the server array controller, the total number of packets in and out of the server array controller, the number of packets processed by the kernel per second, the number of servers managed by the server array controller, the number of times data is refreshed, the amount of time the server array controller is active.

26.   (Original)   The method of Claim 23, wherein the statistics for the host machine include the number of servers managed by the host machine, number of times a particular host machine was chosen by a wide ip for load balancing and the number of times data is refreshed.

27.   (Original)   The method of Claim 23, wherein the statistics for the server include the number of times a particular machine was chosen by a wide ip for load balancing, the number of times data is refreshed, the number of connections that are handled by the server and the up versus down availability of the server.

28.   (Original)   The method of Claim 23, wherein the statistics for the path include the average round trip time (RTT) for transactions between the server array controller and a local DNS, the packet completion rate between the server array controller and the local DNS, the number of times a specified path is chosen, the number of times that the EDNS has received data about the specified path and the number of hops between routers for a transaction between the local DNS and the selected server.

29.   (Original)   The method of Claim 23, wherein the statistics for the local DNS include a measure of how often a particular local DNS is used and the number of times that the EDNS received a resolution request from the local DNS.

30.   (Original)   The method of Claim 22, wherein the statistics for the wide ip include weighting values for the servers managed by a particular server array controller, weighting values for the servers managed by another Host machine, the number of successful domain name resolutions, the number of unsuccessful name resolutions, the load balancing modes used for the pool of servers managed by each server array controller, the load balancing modes used for the pool of servers managed by each Host machine, the number of servers managed by each server array controller that are used to load balance a specified wide ip, and the number of servers managed by each host machine that are used to load balance the specified wide ip.

31.   (Original)   The method of Claim 4, wherein the EDNS employs an iQuery protocol to communicate the metric information from the agent program to the EDNS.

32.   (Original)   The method of Claim 1, wherein the EDNS is a 3DNS server.

33.   (Original)   The method of Claim 1, wherein at least a portion of the plurality of servers are virtual servers.

34.   (Original)   The method of Claim 24, wherein the generated statistics include a quality of service value that is related to the sum of separate portions of collected metric information, including packet rate, round trip time, hops, virtual server capacity, completion rate and topology.

35.   (Original)   The method of Claim 34, wherein each portion of the metric information is separately multiplied by a selectable value that determines the

weight of that portion of the metric information in generating the quality of service value.

36.   (Original)   The method of Claim 34, wherein the generated statistics include a dynamic ratio value for each virtual server managed by a server array controller, the dynamic ratio value being related to the quality of service value and having selectable values for determining the weight of each portion of the metric information that is employed to generate the dynamic ratio value.

37.   (Currently amended)   A system for balancing a load on a plurality of servers that provide access to resources associated with a domain name, comprising:

(a)   a memory for storing logical instructions; and

(b)   a processor for executing the logical instructions stored in the memory, the execution of the logical instructions causing functions to be performed, including:

(i)   receiving a request for access to resources associated with the domain name;

(ii)   determining the load out of band for each of a plurality of servers that provide access to resources associated with the domain name and selecting one of the plurality of servers to provide the access, the selection of the server being based on a determination for optimally balancing the load on the plurality of servers; and

(iii)   based on the determination for optimally balancing the load, resolving an Internet protocol (ip) address of the selected server so that the accessing of resources associated with the domain name at the resolved ip address of the

selected server will cause the load to be optimally balanced on the plurality of servers on a network.

38.   (Currently amended)   Method for balancing the load on a plurality of virtual servers that provide access to resources associated with a domain name, comprising:

(a)   receiving a request from a client for access to resources associated with the domain name;

(b)   querying a local Domain Name System (DNS) to provide the Internet protocol (ip) address associated with the domain name;

(c)   when the ip address is not present at the local DNS, querying a primary DNS to resolve the ip address associated with the domain name;

(d)   when the primary DNS determines the domain name is delegated to a EDNS system, referring the local DNS to the EDNS system to resolve the ip address associated with the domain name; and

(e)   employing the EDNS system to balance the load on a plurality of virtual servers that provide access to resources associated with the domain name by selecting one of the plurality of virtual servers that optimally balances the load, the load being determined out of band, the EDNS system resolving the ip address of the selected virtual server for the domain name and providing the ip address to the client, so that the client will access resources associated with the domain name at the resolved ip address of the selected virtual server.

39.   (Original)   A computer readable medium having computer executable instructions for performing the method recited in Claims 1, 4, 19 or 23.

40.   (Currently amended)   An apparatus for balancing a load on a
plurality of virtual servers that provide access to a resource associated with a domain
name, comprising:

(a)   a memory for storing logical instructions;

(b)   a transceiver for communicating over a network;

(c)   a processor for executing the logical instructions stored in the
memory, the execution of the logical instructions causing actions to be performed,
including:

(i)   receiving a request from a client for access to a resource
associated with the domain name;

(ii)   determining the load <u>out of band</u> for each of a plurality of
virtual servers that provide access to the resource associated with the domain name
and selecting one of the plurality of virtual servers to provide the access, the
selection of the virtual server being based on a determination for balancing the load
on the plurality of virtual servers, wherein at least one of the plurality of virtual
servers is disposed in a geographic area that is separate from another geographic area
where at least one other of the plurality of virtual servers is disposed; and

(iii)   <u>based on the determination for balancing the load,</u> resolving an
Internet protocol (IP) address of the selected virtual server, wherein a subsequent
accessing of the resource associated with the domain name at the resolved IP address
of the selected virtual server by the client will cause the load to be balanced on the
plurality of virtual servers.

41.   (Previously Presented)   The apparatus of Claim 40, wherein the
plurality of virtual servers are generated by at least one server array controller, and

wherein at least a portion of at least one node server is employed by each server array controller to generate each virtual server.

42.   (Previously Presented)   The apparatus of Claim 40, wherein at least one of the plurality of virtual servers is disposed in one geographic area and at least another of the plurality of virtual servers is disposed in another geographic area.

43.   (Previously Presented)   The apparatus of Claim 40, wherein determining the load for each virtual server, further comprises collecting metric information out of band regarding each virtual server, and wherein the metric information is employed to determine at least a portion of the balancing of the load for the plurality of the virtual servers in advance of receiving the request.

44.   (Previously Presented)   The apparatus of Claim 40, wherein the load balancing of the plurality of virtual servers, further comprises enabling at least one geographic based load balancing determination, including hop count, network topology, and global availability.

45.   (Previously Presented)   The apparatus of Claim 40, wherein the performed actions further comprise enabling an agent to communicate metric information regarding at least one of a server, virtual server, and a server array controller to at least one of another server array controller, a primary EDNS, and a secondary EDNS.

46.   (Previously Presented)   The apparatus of Claim 40, wherein the performed actions further comprise enabling a UDP based protocol for communicating metric information by at least one of an agent, server array controller, primary EDNS, and Secondary EDNS.

47.   (Previously Presented)   The apparatus of Claim 40, wherein the performed actions further comprise enabling an EDNS disposed at one geographic

location to make the load balancing determination by selecting a virtual server that is disposed at another geographic location.

48.   (Previously Presented)   The apparatus of Claim 40, wherein the performed actions further comprise enabling an EDNS disposed at one geographic location to employ another EDNS disposed at another geographic location to make the load balancing determination for the selected server.

49.   (Previously Presented)   The apparatus of Claim 40, wherein the performed actions further comprise at least one of a plurality of load balancing determinations, including selecting the virtual server based on hop counts between the selected virtual server and a local DNS for the client, selecting the virtual server based on round trip times between the selected virtual server and the local DNS for the client, and selecting the virtual server based on a topology of the network.

50.   (Currently Amended)   An apparatus for balancing a load on a plurality of virtual servers that provide access to a resource associated with a domain name, comprising:

(a)   a memory for storing logical instructions;

(b)   a transceiver for communicating over a network;

(c)   a processor for executing the logical instructions stored in the memory, the execution of the logical instructions causing actions to be performed, including:

(i)   receiving a request from a client for access to a resource associated with the domain name;

(ii)   collecting metric information out of band related to communication between at least one local DNS that is associated with the client and

at least one of the plurality of virtual servers, wherein the metric information is employable for determining the load on at least one of the plurality of virtual servers;

(iii)   determining the load for each of a plurality of virtual servers that provide access to the resource associated with the domain name and selecting one of the plurality of virtual servers to provide the access, the selection of the virtual server being based on a determination for balancing the load on the plurality of virtual servers; and

(iv)   resolving an Internet protocol (IP) address of the selected virtual server, wherein a subsequent accessing of the resource associated with the domain name at the resolved IP address of the selected virtual server by the client will cause the load to be balanced on the plurality of virtual servers.

51.   (Previously Presented)   The apparatus of Claim 50, wherein at least a part of the collected metric information is employable in the determination of the selected virtual server for balancing the load on the plurality of virtual servers.

52.   (Previously Presented)   The apparatus of Claim 50, wherein the collected metric information is employed for balancing the load on the plurality of virtual servers, and wherein at least one virtual server is disposed in a geographic location that is separate from another geographic location where at least another virtual server is disposed.

53.   (Previously Presented)   The apparatus of Claim 50, wherein the metric information further comprises at least one of a hop count, round trip time, and packet completion rate.

54.   (Previously Presented)   The apparatus of Claim 50, wherein the performed actions further comprise enabling an agent disposed on a node server to communicate metric information to at least one of a virtual server, server array controller, and an EDNS.

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55.   (Currently Amended)   A system for balancing a load on a plurality of virtual servers that provide access to a resource associated with a domain name, comprising;

(a)   a server array controller that balances the load on a plurality of node servers, wherein the server array controller generates each virtual server based on at least a portion of the capacity of at least one of the plurality of node servers; and

(b)   an EDNS that provides for balancing the load on the plurality of virtual servers, the EDNS performs actions, including:

(i)   collecting metric information out of band related to the plurality of virtual servers, wherein the metric information is employable for determining the load on at least one of the plurality of virtual servers;

(ii)   determining the load for each of the plurality of virtual servers that provide access to the resource associated with the domain name and selecting one of the plurality of virtual servers to provide the access, the selection of the virtual server being based on a determination for balancing the load on the plurality of virtual servers and including the resolved Internet protocol (IP) address of the selected virtual server; and

(iii)   in response to a request from a client for access to the resource associated with the domain name, enabling the resolved IP address of the selected virtual server to be provided to the client, wherein a subsequent and separate accessing of the resource associated with the domain name at the resolved IP address of the selected virtual server by the client causes the load to be balanced on the plurality of virtual servers.

56.   (Previously Presented)   The system of Claim 55, wherein at least one virtual server is disposed in a geographic location that is separate from another geographic location where at least another virtual server is disposed.

57.   (Previously Presented)   The system of Claim 55, further comprising enabling the EDNS disposed at one geographic location to make the load balancing determination by selecting a virtual server that is disposed at another geographic location.

58.   (Previously Presented)   The system of Claim 55, further comprising the EDNS disposed at one geographic location to employ another EDNS disposed at another geographic location to make the load balancing determination for the selected server.

59.   (Currently Amended)   An agent for balancing a load on a plurality of virtual servers that provide access to a resource associated with a domain name, wherein the agent performs actions, comprising:

(a)   collecting metric information out of band related to at least one of the plurality of virtual servers, wherein the metric information is employable for determining the load on at least one of the plurality of virtual servers;

(b)   providing the metric information to an EDNS,

(c)   enabling the EDNS to employ the metric information to determine the load for each of the plurality of virtual servers that provide access to the resource associated with the domain name and select one of the plurality of virtual servers to provide the access, the selection of the virtual server being based on a determination for balancing the load on the plurality of virtual servers and including the resolved Internet protocol (IP) address of the selected virtual server; and

(d)   in response to a request from a client to access the resource associated with the domain name, enabling the EDNS to provide the resolved IP address of the selected virtual server, and wherein a subsequent and separate accessing of the resource associated with the domain name at the resolved IP address of the selected

virtual server by the client causes the load to be balanced on the plurality of virtual servers.

60.   (Currently Amended) An apparatus for balancing a load on a plurality of virtual servers that provide access to a resource associated with a domain name, comprising:

(a)   means for receiving a request from a client for access to a resource associated with the domain name;

(b)   means for collecting metric information out of band related to communication between at least one local DNS that is associated with the client and at least one of the plurality of virtual servers, wherein the metric information is employable for determining the load on at least one of the plurality of virtual servers;

(c)   means for determining the load for each of a plurality of virtual servers that provide access to the resource associated with the domain name and selecting one of the plurality of virtual servers to provide the access, the selection of the virtual server being based on a determination for balancing the load on the plurality of virtual servers; and

(d)   means for resolving an Internet protocol (IP) address of the selected virtual server, wherein a subsequent accessing of the resource associated with the domain name at the resolved IP address of the selected virtual server by the client will cause the load to be balanced on the plurality of virtual servers.